circulating the cooling fluid past the tissue sample at a substantially constant predetermined velocity and temperature to freeze the biological material and thawing the biological material for subsequent use.

41. The method as in Claim 40, wherein more than about 55 percent of the biological material exhibits no damage to cellular anatomical structure and remains biochemically active after thaw.

42 The method as in Claim 40, wherein more than about 45 percent of the biological material exhibits no damage to cellular anatomical structure and remains biochemically active after thaw.

43. The method as in Claim 40, wherein more than about 85 percent of the biological material maintains its anatomical structure and remains undamaged after thaw.

44. The method as in Claim 40, wherein the cooling fluid is maintained at a temperature of between about -20 degrees centigrade and about -30 degrees centigrade.

45. The method as in Claim 40, wherein the velocity of the cooling fluid past the biological material is about 35 liters per minute per foot of cooling fluid through an area not greater than about 24 inches wide and 48 inches deep.

46. A method for preparing a biological material for subsequent use, the method comprising:
immersing the biological material in cooling fluid; and
freezing the biological material by circulating the cooling fluid past the biological material at a substantially constant predetermined velocity and temperature.

47. The method as in Claim 46, wherein more than about 40 percent of the biological material maintains its anatomical structure and remains biochemically active after thaw.

48. The method as in Claim 46, wherein more than about 80 percent of the biological material maintains its anatomical structure and remains biochemically active after thaw.

49. The method as in Claim 46, wherein more than about 85 percent of the biological material maintains its anatomical structure and remains undamaged after thaw.

50. The method as in Claim 46, wherein the cooling fluid is maintained at a temperature of between about -20 degrees centigrade and about -30 degrees centigrade.

51. The method as in Claim 46, wherein the velocity of the cooling fluid past the biological material is about 35 liters per minute per foot of cooling fluid through an area not greater than about 24 inches wide and 48 inches deep.

52. A system for use in preparing a biological material for subsequent use, the system comprising:

a cooling fluid reservoir configured to receive a biochemically active biological material for immersion in cooling fluid;

one or more cooling fluid circulators configured to circulate said cooling fluid;

a heat exchanging coil for removing heat from said cooling fluid;

a refrigeration unit configured to remove heat from said heat exchanging coil; and wherein said cooling fluid reservoir, said one or more circulators, and said refrigeration unit cooperate to freeze the biological material by circulating the cooling fluid past the tissue sample at a substantially constant predetermined velocity and temperature.

53. The system as in Claim 52, wherein more than about 40 percent of the biological material its anatomical structure and remains biochemically active after thaw.

54. The system as in Claim 52, wherein more than about 80 percent of the biological material maintains its anatomical structure and remains biochemically active after thaw.

55. The system as in Claim 52, wherein more than about 85 percent of the biological material maintains its anatomical structure and remains undamaged.

56. The system as in Claim 52, wherein the cooling fluid is maintained at a temperature of between about -20 degrees centigrade and about -30 degrees centigrade.

57. The system as in Claim 52, wherein the velocity of the cooling fluid past the tissue sample is about 35 liters per minute per foot of cooling fluid through an area not greater than about 24 inches wide and 48 inches deep.

58. The system as in Claim 52, wherein, the circulator is a motor/impeller assembly immersed in the cooling fluid.

59. The system as in Claim 52, wherein the cooling fluid is circulated past a multi-path heat exchanging coil submersed in the cooling fluid, and wherein the heat exchanging coil is